

About the Project

Problem

Solution

### Our Objective

Our comprehensive Library Management System is designed to enhance community engagement and improve library operations, fostering a culture of continuous learning and growth. By enabling readers to connect and collaborate through features like "Ask from Community" and "Idea Corner," we develop a strong sense of community among library members. Additionally, providing access to a wide range of resources such as e-books, e-newspapers, and past papers promotes ongoing learning. To streamline operations, our system offers online book reservations, remote membership, and efficient inventory tracking, all through a user-friendly interface. For effective task management, staff members are equipped with tools via the E-Task Panel, which helps establish clear roles and smooth coordination. This ensures that both staff and users can navigate and utilize the library resources efficiently and effectively.

### Functional Requirements

Our Library Management System is designed to enhance both library operations and user engagement through a comprehensive set of functional components. Key modules include Book Management, Member Management, Inventory Management, Finance Management, and an E-Task Panel. Each module enables adding, modifying, viewing,

and searching records, with auto-generated IDs and barcodes for streamlined processes.

The system offers secure login registration, directing users to specific panels based on their roles, such as System Admin, Librarian, Library Assistant Registrar, Library Information Assistant, and Registered Library Users. This ensures that users have access to functionalities relevant to their responsibilities. Specialized features include Donation Handling for managing book and fund donations, a Books Check-In and Check-Out Unit to facilitate borrowing and returning, and an Idea Corner for users to contribute creative content. The Idea Corner is divided into sections for kids and adults to cater to different age groups.

Additionally, the Ask from Community platform allows members to interact, share insights, and request new additions to the library collection. The E-Resources Section provides access to e-books, e-newspapers, and past papers, promoting continuous learning. Overall, these functionalities ensure efficient library management and foster a vibrant, engaged community.

### Non Functional Requirements

Our Library Management System also addresses important non-functional requirements to ensure a smooth and secure user experience. The website is designed to be user-friendly and visually appealing, with an easy-to-use interface and minimal response times for quick access. It is built to be scalable, allowing for future expansion as the library grows. The system is also maintainable, ensuring that updates and improvements can be easily implemented. Additionally,

data privacy is a top priority, with measures in place to ensure that personal data is not exposed to unauthorized parties. These features together ensure a reliable, efficient, and secure system for all users.

### User Levels

The user levels in our Library Management System are categorized into two main groups: Library Users and Library Staff. Within the Library Users group, there are two categories: Registered Library Users and Guest Users. The Library Staff group includes several roles: System Admin, Librarian, Library Assistant Registrar, and Library Information Assistant.

### User Roles

**System Admin:** The System Admin has full access to all the functions of the Library Management System, ensuring seamless operation, maintenance and updates of the system. This role can also be performed by the Librarian without maintenance and updates.

**Librarian:** The Librarian oversees the library's operations, including approving purchases and financial updates, managing donation handling, and setting staff availability. They also handle member management and assign tasks using the E-Task panel, ensuring efficient library management.

**Library Assistant Registrar:** The Library Assistant Registrar manages inventory, finance, and member accounts. They approve Library Information Assistant accounts, set availability, request purchase

approvals, and assign tasks to staff members, excluding the Librarian, facilitating smooth library operations.

**Library Information Assistants:** Library Information Assistants handle book check-in and check-out, book management, and member management. They upload e-resources, approve “Idea Corner” requests, collect fines, and manage donations. They can use the E-Task Panel for notifications but cannot assign tasks.

**Registered Library Users:** Registered Library Users can view books, make check-out requests, pay fines, and access free e-newspapers and past papers. They can use the “Ask from Community” feature, request to add creations to the “Idea Corner,” and receive notifications via the E-Task panel.

**Guest Users:** Guest Users can view the library’s book collection, location, and availability without the need for registration. This provides easy access to basic library information, encouraging community engagement.

## Methodology

We chose the Waterfall methodology for our Smart Library Management System because of its structured, step-by-step approach, which aligns well with our project's clearly defined objectives. Unlike projects with evolving requirements, our system benefits from a solid foundation of functionalities outlined from the beginning, and the emphasis of this methodology on comprehensive documentation

ensures effective communication among developers, librarians, and stakeholders for enhancing in the system in future.

### Gantt Chart

This chart helps us plan and track our project's schedule. We use bars to show when each part of the project starts and ends. Think of it like steps on a staircase, where each step represents a different part of the project. And by looking at it, you can see that we're using a method called Waterfall to develop our project.